

### ABSTRACT

Systems and methods increase the available bandwidth for stations on a network, eliminate collisions during normal operations, do not require a network administrator, scale essentially linearly, are self-organizing, self-diagnosing and reporting, and are deterministic.

- 5 One station becomes the starting bus master and creates a table of all the stations on the network along with their corresponding delays relative to the starting bus master. The stations communicate in an order determined by the starting bus master with the first station being a starting bus master and the last station an ending bus master. The starting bus master transmits a beginning of sequence message and the ending bus master generates an end of sequence message. The stations need not be limited to any specific wavelength nor need they be forced to transmit during any specific time slot. The network automatically adds or drops stations from the network.